

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICES CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." . . . VIRG.

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AGRICULTURE.

CONGRESSIONAL REPORT

Of the Committee on Agriculture, on the memorial of the Delegates of the United Agricultural Societies of sundry counties in the state of Virginia.

FEBRUARY 2, 1821.

Continued from page 379, volume II.

Whenever one employment becomes more profitable than another, capital will desert the less for the more profitable. Every such change, however, is attended with the loss, generally, of the whole of the fixed, and a portion of the circulating capital of the deserted occupation. But it is easy to perceive that a duty on a single article may occasion the loss of several such capitals. If, for example, by a duty on foreign boots and shoes, we prevent a certain quantity from being brought into the country, we immediately destroy the market for the commodities which were given in exchange for them; and if this is a manufactured article, we then destroy the market for the agricultural product which constitutes its basis, so that the loss falls ultimately on agriculture. Now, if the agriculturists who are thus thrown out of employment become boot and shoemakers, there would be the loss of only one capital; but if, as is more probable; they should apply themselves to some other branch of agricultural industry, as being more analogous to their recent occupation and for the same reason, the additional boots and shoes required were made by labour and capital taken from the saddle and harness business, there would be the loss of two capitals. It is not difficult to perceive that the loss might be extended to a greater number. Perhaps it may be said that this loss would be repaired by the superior profits of the new employments; but this would not be the case. The new employments, except those which were the objects of the bounty, would be less profitable than the old ones. If they were equally so, there would still be the loss of the whole of the fixed capital, which would be entirely sunk. The committee have already noticed that cause of loss which arises from a diminution of skill, and the other facilities of production. This great and inevitable source of loss is embraced in what has been said of the diminished productive powers of the new employments of the community. They have also noticed that source of loss which arises from the unproductive employment of that portion of the duty which is paid into the treasury, and which, if it remained in the hands of individuals, would be devoted to reproduction, and augment the national wealth. As however, we must have revenue, this loss is only to be objected to when duties are excessive. But there is another source of loss in the constant tendency of the system to diminish production, and of course, accumulation. The increased cost of consumption, however, which is one of the means by which this effect is produced, will affect chiefly the labouring classes and the raisers of raw produce. Every thing on which the wages of labour are expended, except the products of agriculture will rise in price; but labour itself cannot rise, and may fall, for the demand for labour created by the new employments, will be more than supplied by that thrown out of the old ones; and thus the comforts of the labourer, who will have to purchase dearer articles with smaller means, will be materially impaired. It is thought too, that the value of money must be proportionally higher in a country which pursues this system, and this is another circumstance

which must injuriously affect the wages of labour.—In the infancy of manufactures, too, the coarser kinds being first produced, the tax is chiefly borne by the poor who consume them. This evil is increased too by the manner in which the duties are adjusted on the finer and coarser manufactures; for, in the present, as well as in the proposed tariff, the duties are much higher on the latter than on the former.—On coarse and on fine cottons, for example, there is a difference of not less than 23 or 25 per cent. in favour of the latter; on common glass tumblers and on cut glass tumblers and decanters, a difference of from twenty-seven to thirty-nine per cent. in favour of the cut glass. The duty on molasses and on brown sugar, if the proposed tariff is adopted, will be about 100 per cent. on the cost; on salt 120 per cent. and on many other articles, consumed chiefly by the poor, the duties will be oppressively heavy. It has been estimated, by a very intelligent writer, that the duties which would be paid under this new tariff, by the great body of the people, would not average less than seventy-five per cent. on articles of necessity, whilst the duties on articles of luxury, used by the rich, would not amount to more than thirty per cent. To tax the poor for the benefit of the poor would be bad enough; but to tax them for the benefit of the rich is intolerable. This oppressive operation of the system on the poorer and labouring class is one of its least pleasing effects, and when we consider their relative number to the capitalists, it is one of the most alarming; for, independently of its political consequences, nothing can be more unfavourable to accumulation than inequality of wealth. There is always proportionally less of the income of the wealthy devoted to reproduction, because there is more of it expended on factitious wants; on those luxuries which have, besides the pernicious effect of producing imitation on the part of the poor, and of bringing in their train the extravagant expenditure of the government, which, it is well known, when it once begins, never stops.

Diminished consumption must necessarily diminish production; but it is diminished in another way, and that is by the decreased price of agricultural produce. This effect of the system is inevitable; yet, strange to tell, the increased price of agricultural produce has been one of those delusive promises made use of to recommend it: and, still stranger to tell, one that a great many have believed in. The home market has been talked of, and its mysterious virtues have been highly extolled, though no one has shown the fashion of operating of this wonder-working agent.—The following considerations, it is believed, will show how completely fallacious are the expectations of any benefit from such a source. If the price of commodities is regulated by the relations of supply and demand, (and their market price undoubtedly is,) then, provided the number of consumers in the country remain the same after the adoption of the system as before, inasmuch as we shall be deprived of the foreign market to the same extent that we cease to purchase, (for foreigners cannot buy of us unless we buy of them,) the relation of the supply to the demand must be increased; consequently, there can be no rise of price, but there must be a fall. But, we are told that foreigners are to be attracted hither by this system. Although it can scarcely be imagined, in any event, that as many would be attracted hither as we supply abroad, let us admit that this might be the case; then the relation of supply and demand would be unaltered, and consequently prices cannot rise, but must remain stationary. The only conceivable mode by which the relation of supply and demand could be altered, would be by a portion of the

persons who were employed in agriculture, leaving it to engage in manufacture. It might readily be conceded, that, if the same quantity of manufacture, could be consumed in the country, after the adoption of the system, as was consumed before, as, from diminished skill, a greater number of hands would be required to produce them, the consumers of agricultural produce would be multiplied; but we have already seen that this could not be the case; because the cost of consumption would be vastly increased, and the means diminished. But the committee deny distinctly that any such change in the relation of supply and demand could be produced by an increase of duties: or, if it could, that those duties could have the effect to raise the price of one kind of agricultural produce, but at the expense of another, or to raise the price of any kind permanently at all. Suppose, for instance, a duty is laid on the raw cotton of other countries; it is evident, that, if it has the effect to diminish the quantity imported, it must destroy the market for the commodities with which it was purchased. Let us admit that its immediate effect would be to enhance the price of raw and of manufactured cotton; and, if it would, it must be enhanced to all its consumers—to the manufacturer himself, so far as he is a consumer, and even to the planters who is, however, made to pay back on the fabric what the manufacturer advanced on the raw article. The market price of commodities is increased by increased demand or diminished supply; their natural price can only be increased in consequence of its becoming necessary to bestow on them an additional quantity of labour. Now, it is evident, that, in a country where lands of the first quality are not all in cultivation, the additional quantity required to satisfy the demand would be produced, almost immediately, and that the price could not be permanently increased; and, if it were increased, it must be observed, that it would be at the expense of that agricultural product which has been displaced. It would be produced too without the necessity of resorting to poorer lands, so that the cost of production remaining the same, there would be no increase of its natural price. Indeed, is it not obvious, that if labour is made to leave agriculture for manufactures, the poorest lands will be deserted first, and that the cost of production, therefore, instead of being increased, would be lessened? This, perhaps, might be an advantage, provided the labour and capital taken from agriculture were independently of the bounties they receive, as productively employed as they were before; but this, it has already been shown, would not be the case. Even if the products of that labour and capital in consequence of the bounties paid on them, and the increased cost of consumption, had a greater exchangeable value, it is not the exchangeable value of the products of a country which constitutes its wealth, but their quantity and utility. But, even if it were admitted that poorer lands would have to be resorted to in order to produce the additional supply, it is maintained, that with respect to those commodities that go abroad in the great marts of the world, and there come into competition with similar commodities of other countries, it is not the cost of production here, but in that country where they are produced with the greatest quantity of labour, that regulates their natural price. It will, no doubt, be said, if such is the effect of competition to reduce the price of agricultural products, why will it not reduce the price of manufactured produce? For this obvious reason—that the field of production is limited in the one, and is unlimited in the other—that the cost of production cannot be increased in the one, and may be vastly increased in the other. As the expectation that domestic manufactures will be reduced, by

competition, to an equality of price with foreign manufactures, has been held out to allay our apprehensions of this system, it may not be improper to examine on what it is founded. It is denied that competition can produce a permanent diminution of price. It may undoubtedly reduce the market price for a time, but it cannot reduce the natural price, and the former cannot permanently remain below the latter. Competition may produce a glut in the market, and thus bring prices so low as not to repay the expense of production; but it is evident that this state of things must be temporary—there must be some profit, or the business cannot be carried on. It is the increased facility in producing an article which alone can diminish the price. Domestic will never be sold lower than foreign manufactures until we equal foreigners in skill, and in all those circumstances which enter into the cost of production. When we equal them in these respects, as we probably will after a long series of years, we may, indeed, then undersell them, by the difference in the cost of transportation. But what shall we gain by this? It will not even pay for the destruction of the capital employed in the transportation. Never will it compensate for that waste of income and of capital, and the other incalculable losses which will ensue from the system.—The whole of this reasoning will doubtless be converted by the declaration of the fact, that cotton goods are now lower in this country than they were before the present tariff was adopted. Here, as in many other instances, we agree in the fact, but differ in the principles by which it must be explained—the manufacturers ascribe it to competition—their opponents ascribe it to the fall in the price of the raw material, and of labour; to greater facility in production, and to the general stagnation of trade, and this reasoning is corroborated by the fact, that the fall in this article has been general all over the world. Still, the ratio of the fall in this country and in England being about the same, and the duty nearly or quite prohibitory, English cottons cannot be imported. If the duty was taken off, or even considerably diminished, we should undoubtedly see that coarse cottons would be still lower than they are at this time. As to the assertion that the price of raw cotton in this country is kept up one or two cents higher, in consequence of the competition of the American with the English manufactures, it is totally gratuitous. It is utterly useless to talk of underselling foreigners until we can produce the article at less cost—the thing is impossible. Nor is it desirable that we should ever undersell foreign manufactures; for, in order to do so, we must not only equal them in skill, machinery, ingenuity, industry, &c. but we must equal them in human degradation and wretchedness. We must drive our labourers from the fields, from the beauties and bounties of nature, to those dismal and demoralizing abodes, where they sink into hopeless stupidity and penury; or where want goads ingenuity to reluctant exertion for a scanty subsistence; and where the health and morals frequently become victims to hard and untimely labour, and the imperious laws of poverty and hunger.

Another source of loss is in the tendency of this system to drive commercial capital abroad, and this it will much more probably do, than attract manufacturing capital hither, as well from the superior facility of its removal, as from the distrust which the system is calculated to produce in the equity of the government, and the stability of its policy; to which perhaps, may be added, the inducements afforded by the vast fields of industry which the enlightened policy of other nations will, probably, at no very distant period, open to commercial enterprise. It is believed that the prevalence of sound principles of political economy, and the light of returning reason have produced a disposition in all the commercial nations of the world, to restore the system of free trade, and that they are now prevented from returning to it at once, by the consideration that the sudden abandonment of a system, so interwoven with all the interests of society, must necessarily be productive of great immediate mischief; a consideration which should teach us the propriety of serious deliberation before we adopt it—the more particularly so, as the ex-

pediency of making it permanent is made to depend on the contingency of other nations continuing it. A still more alarming effect of this system will be, to drive population and capital from one state to another. The poorer agriculturists of the Atlantic states will be compelled, by the increased cost of consumption, and the diminished price of produce, to go to the west in search of more fertile lands; whilst capitalists will go to those states where manufactures are best established, and most flourish. And shall we submit to this unlawful effect of this system without calling in question the policy which produces it? The committee are disposed to do more—to call in question the authority and power of the general government to enforce a system which can thus aggrandize one state, and ruin another.

A still further source of loss is in the effect of this system to drive capital from one kind of manufactures to another. The manufactures that languish will be deserted for those that flourish, or they must be continually bolstered up by new protection. Indeed, even the manufactures that are best established, must be sustained in this way, if, as is very possible, by the invention of new machinery, or by any other means which will diminish the cost of production, foreigners can come again into the market, and, in spite of the duties, undersell the American manufacturer. This is one of the most vexatious effects of the system—it will never be done with; but new exactions will be perpetually made.

It has been contended, that the arguments which go to show the impropriety of extending manufactures, are merely theoretical, and that they are refuted by experience. It is said that England has pursued the restrictive system, that England is wealthy and prosperous, and, therefore, that the tendency of the system is to promote wealth and prosperity. The committee cannot, however, help thinking, that it is rather an unfortunate specimen of practical reasoning, when an effect is gratuitously assigned to a cause, without any attempt to show their connexion, and where many other causes are operating better calculated to produce the effect. England is wealthy and powerful, for she is not prosperous, not in consequence of this system, but in spite of it. She is wealthy and powerful in consequence of the indomitable energies of her genius, her enterprise, and her comparatively free institutions. The English system is not the result of foresight, as has been imagined, and, if it was, it is pretty well understood by what kind of foresight the affairs of nations are generally governed. It is the result of compromise between the avarice of individuals, and the needy ambition of the government. The privileged orders of that country have always been enabled to make successful encroachments on the rights of the people, by bribing the cupidity of the government with a share of the spoil. This is the kind of foresight which has produced the British system, that system which is now held up for our admiration and imitation. But experience as well as theory, contradicts the conclusions in favour of restriction. The success of the Dutch policy refutes the idea that restrictions have produced the grandeur of Britain. The following judicious remarks, extracted from an excellent treatise on this subject, show the prosperity which flows from an opposite policy.

"Notwithstanding the immense losses which the Dutch nation sustained for upwards of twenty years by British captures, French exactions, and the almost entire prostration of commerce, yet their trade, and with it their national importance, appear to have become equal, or nearly equal, to what they were before the war of 1793. Their capital city, Amsterdam, has again become the chief mart of Europe. If the policy of any of the European nations is proper to be imitated by the United States, why is not the example of the United Provinces, as regards their fiscal concerns, as worthy of imitation as that of England? At least, seeing that, in Holland, her citizens have, for the most part, been left to themselves in the direction of their industry, ought we not to pause before we decide that an opposite system will promote and extend the prosperity of our citizens? How little the Dutch commercial policy has been directed by the protecting system, may appear by the low duties on

the following articles, most of which come in competition with their own produce and manufactures, viz:—

Arms, fire	- - -	10 per ct.
Baskets	- - -	15 per ct.
Butter	- - -	½ ct. per lb.
Books, bound	- - -	5 per ct.
unbound	- - -	3 per ct.
Bristles and brushes	- - -	10 per ct.
Blankets	- - -	10 per ct.
Cheese foreign	- - -	80 cts. per 100 lb.
Cordage	- - -	2 dol. per 100 lb.
Carriages, new	- - -	10 per ct.
Clocks	- - -	10 per ct.
Copper manufactures	- - -	10 per ct.
Candles, tallow	- - -	2 ½ cts. per lb.
Clothes, ready made	- - -	10 per ct.
Cotton	- - -	16 cts. per 100 lb.
manufatures	- - -	30 flor. per 100 lb.
about	- - -	2 to 3 cts. per yd.
Clothes, woollen, and other manufactures, wool and worsted	- - -	3 per ct.
Linens, unbleached	- - -	2 per ct.
bleached	- - -	4 per ct.
Sail cloth	- - -	2 per ct.
Sugar, raw or clayed	- - -	12 cts. per 100 lb.
refined	- - -	4 cts. per lb.
Sealing wax	- - -	10 per ct.
Spirits pay no duty, but an excise, which for common proof, (probably our 3d pr.)	- - -	28 cts. per gal.
Ditto, highest proof	- - -	42 cts. per gal.
Wine of all kinds	- - -	16 cts. per gal.
Tobacco, manufactured, snuff, &c.	- - -	8 per ct.
Toys, turnery, manufactures of wool and leather, necklaces, looking-glasses, fans, snuff, and tobacco boxes, trunks, with a great variety of similar articles,	- - -	6 per ct.

FOREIGN VESSELS.

Teas, Bohea, and Congo	-	\$3 20 cts. per 100 lbs.
other	-	6 40 cts. per 100 lbs.

DUTCH VESSELS.

Teas, Bohea, and Congo	-	100 cts. per 100 lb.
other	-	200 cts. per 100 lb.

This extract is from the tariff of Dutch duties for the year 1816, every article of which, with very few exceptions, is rated about in proportion to those quoted above. Most of them, as is well known, are manufactured or produced in Holland, especially butter and cheese, of which the amount of exports, some years since, was, to the best of my recollection, about three millions sterling. Their sugar refineries are only protected by a duty of four cents a pound, yet Ricard affirms, that in his time, (about forty years since,) there were one hundred refineries, which manufactured one hundred thousand hogsheads of sugar. Tobacco is very extensively manufactured in Holland. Gin, as every one knows, is one of their great staples. This wise nation seems to have thought, that goodness of quality, and cheapness of price, were surer foundations of national industry to rest on, than protecting duties."

The invariable tendency of low duties to increase consumption, and of course production, is another argument from experience. Both in England and France, this effect has frequently been observed, at various epochs of their history. The following statement, extracted from a British journal, will suffice to place this subject in a strong point of view. In 1744, the East India Company's sales of teas amounted to about 600,000 pounds, annually, producing a revenue of about 140,000/ sterling. Early in 1745, the tea duties were greatly reduced, and in 1746, the sales amounted to 2,000,000 pounds, and the revenue to 228,000/. In 1748, however, the duties were

again increased, and fluctuated between that epoch and 1784, from 64 to 119 per cent. In the last mentioned year, however, the government having, in vain, tried every other means to prevent the smuggling and adulteration of tea, reduced the duty from 119 to 12½ per cent., and the revenue instead of falling off, in the proportion of one to ten, owing to the increased consumption, only declined in the proportion of one to three. Similar experiments with regard to wine and coffee, give the same results. The reason is obvious.—Every diminution of an article, brings it within the range of consumption of some who could not afford to consume it before, whilst every increase has a contrary effect. To adjust the duties, generally, so as to produce the greatest possible revenue, is a matter which requires great skill and experience. Although we have made no such decisive experiments as the British, for the effect of the imposition and repeal of the double duties, owing to the period when they operated, proves nothing, there is still reason to believe, that the operation of the present duties, on many articles, has been to diminish consumption and revenue. It is difficult to make the proper allowances for the effect of the rapid increase of population in this country; but the fact that revenue has not increased in the same ratio with the duties and population, is considered as decisive proof, that the duties on many important articles must be too high. Indeed, it is generally admitted, by the most intelligent and practical men, that they are so.

Now, the general principles from which the committee have reasoned, are either true or false. If they are false, it will be easy to show wherein the fallacy lies. If they are true, it will be necessary to show, that there is something peculiar in the situation of the United States, which makes an exception to their general operation. If there is nothing peculiar in our situation, then these principles must stand immovable. The most extraordinary argument that has been used to justify the system, is the great and universal distresses of the country. But in this, there is nothing peculiar. It is almost universal. But even if it were true, that we are the only people in this state of distress, it would remain to be proved, that this system furnishes the remedy for the disease. So far from this being the case, it is believed to be one of its causes. Undoubtedly, a great proportion of our distress may be ascribed to the cessation of those convulsions in Europe, which throwing a vast deal of the trade of the world into our hands, enabled us to reach an extraordinary pitch of prosperity in a short time. But it should not therefore, be supposed, that there have been no internal causes of this distress. To say nothing of the contributions levied on the nation, by funding and banking, the restrictions which preceded the war; the war itself, though a just and necessary measure, and the subsequent prosecution of the restrictive system, had a share in producing the general distress. The revenue from the imports gives us some idea of the tax which the system imposes on us; but we cannot form an adequate idea of it, unless we could ascertain the quantity of domestic manufactures consumed in the country, and the average of the duties paid on them. There are no means by which this can be ascertained with precision, but we may form a rough estimate of it from a few items. Supposing there are forty or fifty millions of yards of domestic cottons consumed in the United States, annually, the consumers may be supposed to pay on them, at least \$2,000,000. As much more is probably paid on woollens, and it is probably, not an exaggeration to say, that the tax paid on domestic articles, which goes to the manufacturers, is fully equal to one half of the average duties on imports. This is the direct loss; to which must be added, the indirect and collateral losses, that it has been attempted to be shown result from the system. When we super-add this to the other causes that have been indicated, can our distresses any longer present a mystery? And is it not more natural to ascribe them to these obvious, undeniable, and constantly operating causes, than to look for those causes in futurity? Is it not reversing the usual order of things, to attempt to ex-

plain a past, or existing effect, by imputing it to what has not been done, instead of what has been done? Is it not contrary to reason to tell us, that the remedy for evils which have arisen from taxation, is further taxation? It is much more rational to remedy the evil by removing the cause. This we can certainly do, partially, if not wholly. We can remove some, if not all of the causes. We can gradually get rid of all those burdens, which have had so great a share in producing the present calamitous state of things. This is all that we can do; the rest must be left to time. If it be true, that the duties on importations have diminished consumption, they must have had the same effect on production, and their diminution would increase both. In the present depressed price of all the great staples of agriculture, what can be so likely to relieve the agriculturist, as to open a market for his produce? And what will be so apt to do this, as to increase the demand for them, by diminishing the prices of the commodities that are exchanged for them? It is said, that nations now produce these staples of agriculture themselves, and would not take them from us. To a certain extent, they do, and this has been occasioned, partly by our own policy, as in the instance of the island of Madeira, which in consequence of our excluding her wines, by heavy duties, procures the corn she once bought of us from other countries. But, how is it that nations now make their own bread-stuffs? In England, for example, they have resorted to their fourth and fifth rates of land. Now, would not any circumstance which would increase the demand for those articles which they produced with greater facility than corn, be an inducement to withdraw capital from the raising of the latter to apply to the former? This reasoning will apply to every country. Open a market for their products—they will then make that which they make at least cost, and purchase with it, of other countries, what they can only make at a greater cost. If it is said, that a relaxation on the part of one nation will not perhaps, produce a correspondent relaxation on the part of another, it will still be beneficial, unless by continuing restriction, you can coerce other nations to abandon it—the only pretext, as has been already said, under which the countervailing policy can claim even plausibility. As long as the absurd doctrine prevails, that it is the interest of a nation to countervail every restriction of another nation, there never can be a relaxation, or a return to the free system; the warfare of nations will be interminable. The truth is, if restriction on the part of one country injures another, to retaliate, makes it worse, unless it drives the other from its policy. The most probable way of producing an abandonment of the restrictive system by other nations, is to tempt them by relaxation; if it does not produce reciprocity, it at least benefits both, as retaliation injures both. It is evident, that there has been a great change in public opinion, throughout the whole civilized world, in favour of freedom of commerce; and, though governments are always the last to abandon antiquated errors, sentiments favourable to free trade have been avowed, even by them, and they have not been altogether unaccompanied by acts. It is not to be expected that countries like England, which have pursued the restrictive system so long, could get rid of it but very gradually. She has, however, shown some wish to do this, by the abandonment of some of her restrictions on her trade with Sweden and Norway, and it is understood, that both France and herself have, even before our navigation acts, manifested a willingness to put our trade with them on a more favourable footing. In Spain, the Cortes have, unwisely indeed imitated England in their corn law and other restrictive measures; but, in general, their regulations are more favourable to trade than they were under the old government. The monopolies on tobacco, salt, quicksilver, lead, powder, sulphur, &c. have been abolished; the first allowed to be imported, and the others exported at moderate duties. Prior to the revolution the importation of tobacco was prohibited; the King had the monopoly, and sold it at three dollars seventy cents per pound. By the new tariff, after March next, it will be charged with a duty of only thirty-five maravedis, about eight and a quarter cents, per pound, which will enable the people of Spain to pro-

cure it very cheap, and thus occasion a large demand for it. They have abolished the Cinco Gremios and Philippine Companies, on the ground, that their privileges were incompatible with free government, and have, with some modifications, re-established the tariff of eighteen hundred and sixteen, which was the first evidence of liberal policy that Spain ever gave.

But, if we cannot, consistently with our interest, begin the system of relaxation, let us at all events refrain from further restrictions, which may tempt all other nations to retaliate, as they are now doing in the British province of New Brunswick, under the pretext of our navigation act, and thus place ourselves and the world, at a still greater distance from each other, and from the restoration of commercial freedom.

(To be concluded in our next.)

THE FARMER.

BALTIMORE, FRIDAY, MARCH 2, 1821.

*** The Editor of this paper is in treaty for a Horse of the best blood and figure—to be had in the Union. He will probably stand at the Maryland Tavern, on the Frederick Road, and at Bladensburg, in the District of Columbia.*

The Dairy Memoranda (see page 392,) for making Pine Apple, and two meal Cheese, as successfully practised in Massachusetts, were communicated at our particular request by an eminent Agriculturist of that State, and accompanied with useful allusions to his early disappointments, and subsequent success in making cheese of the very best quality.

ON THE CULTIVATION AND MANAGEMENT OF

TOBACCO.

[Concluded from page 384, Vol. II.]

We come now to the packing, and prizing or pressing of Tobacco.

It is never in a proper condition to be put into the Hogshead, we are assured by a most intelligent Inspector, unless the stems are firm, or in better words, dry enough to support the leaves in an upright position whilst you shake the bundle or head in your hand, holding it at the tie. But, if it has been previously well conditioned, whenever you find it in the state just described, and yet moist enough to bear hard pressing without breaking, you can pack it with perfect safety.

The proper and best, because the fairest way to pack it may be thus described. Get into the hogshead and draw two diameters on the bottom head, crossing each other at right angles, and of course dividing its area into four equal parts; begin then to pack at the circumference of the head, and at either of these lines or radii, laying the first bundle of tobacco parallel therewith, the stem or tied end pressed close to the stave, and the leaves consequently in a line that would cut the radii of that quarter of the head, or circle at right angles. The next bundle is to be placed in the same manner, but along side of the first, and to the last add others, until no more can be placed parallel to the first, in that quarter or division of the head. You must then begin at the other side or straight

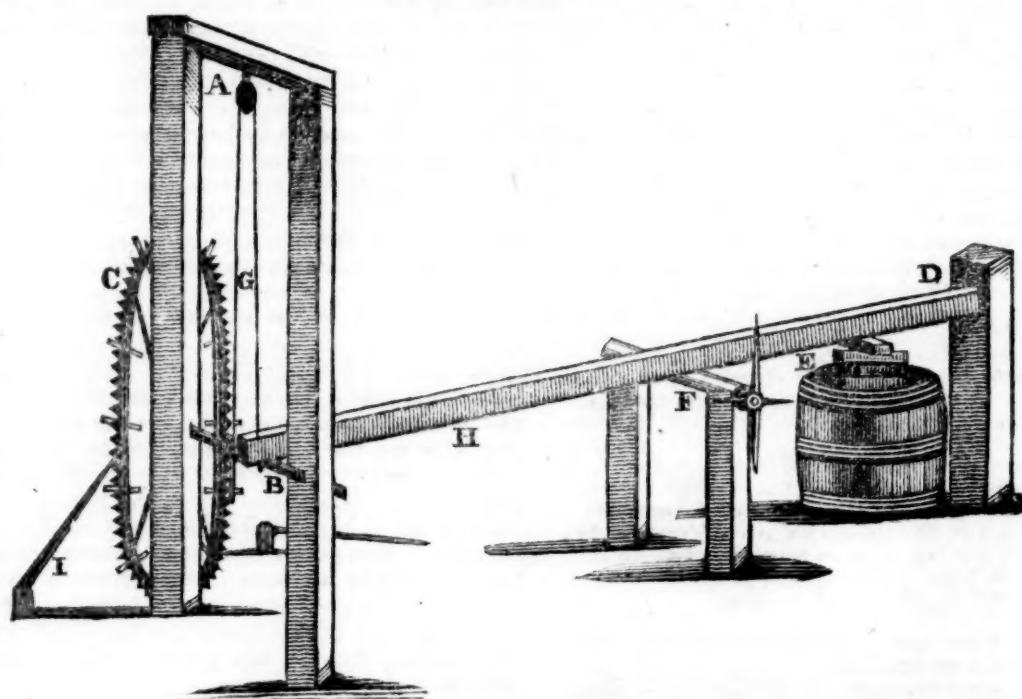
line of this division, and pack as at first directed, but towards the tobacco which you had already placed in the hoghead. By packing in this mode, you will get the leaf, or most valuable part, chiefly to the inside of the package, where it will be most secure, and the stem, or tied and least valuable part, will be principally at the outside. The other quarters or divisions on the head, are to be packed in like manner. When thus packed, although the leaves cross each other at right angles in each division of the circles, still as two thicknesses of leaves are thinner than one layer of the tied or stem ends, it will be necessary to put some rows in the centre, in order to keep the courses level. This you will do, after you have laid one or more outside rows all round on the head, and as often thereafter as may be requisite. The ties of the bundles in the centre rows should not touch those of the outer courses. They should form an oblong square, with the heads of the bundles outwards. All of the centre rows are to be packed in the same manner, but they must cross the first and each other in directions best calculated to keep the whole surface level. This ought to be strictly attended to, that every part may be equally pressed. The person who packs must place the tobacco as close as he can with his hands, as he lays it down, and subsequently press it by his entire weight, as he moves round on his knees to pack other parts of the hoghead. A few bundles may be put occasionally in other positions to advantage, for every place that appears to be sufficiently below the common level to receive a bundle or two, ought to be invariably filled up. However, as there are but two objects to be kept in view in the arrangement of the bundles; if these are accomplished the packer may please himself as to the mode, and they are solidity to the whole package, and security to the most valuable part of it. When the hoghead is filled, you must put a false, loose head, or follower made of thick plank, and pile on this as many square blocks of wood as you can get between it and the prize, which should be raised and blocked up as high as it can be; this done, you may apply the pressure, and continue it until you bring the prize to a horizontal line, below which it should never be forced. The lever is then to be raised again, that you may put in more tobacco, or simply add more blocks, as may seem best, before you prize again.

These operations are to be repeated until you can press no more into the hoghead, which generally contains when well pressed, from 700 to 1000 lbs.; but it cannot by the laws of Maryland, be more than four feet long, nor must the diameters at the head and bulge within the staves jointly exceed seventy inches. In these diameters, there should be but very little difference, as it would create difficulty in pressing.

The press which is now most approved, was lately invented by Mr. Cimon Frazier, of Upper Marlborough, Prince George's County, Maryland; who is willing to contract with proper persons, and upon moderate terms, for the privilege of using his patent right, to erect them in most parts of the United States.

This press unites to the power of a long lever, that of a large vertical wheel, impelled by the

FRAZIER'S PRESS.



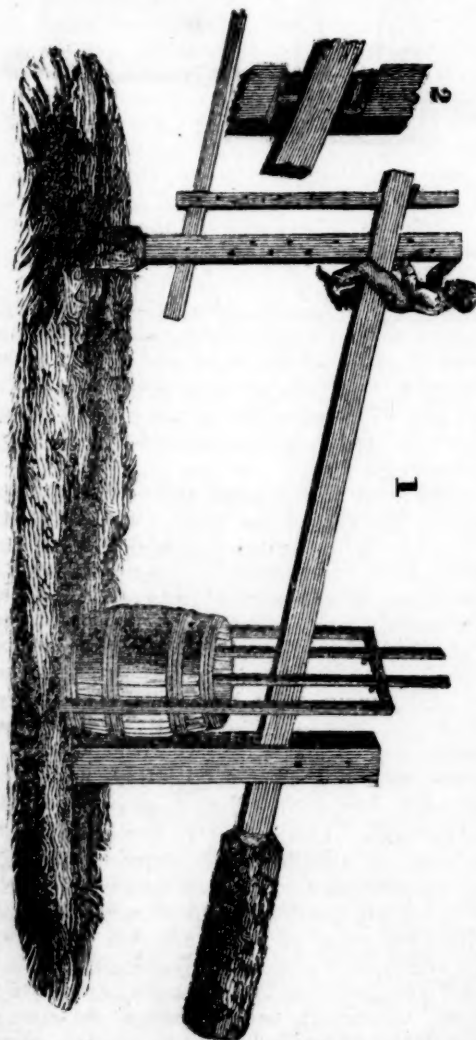
gravity or weight of the operator, which is not only an easy but very advantageous mode of using power. A stout man may push a horizontal wheel, with the effect of a hundred pounds, but stepping on the vertical wheel, he moves it by his entire weight, which may be from 160 to 200 pounds; showing a great increase of power and effect, with less manual exertion. The wheel, thus placed, is no doubt the best mechanical power that we can use in connexion with the long common lever, in packing tobacco. and we are persuaded that the same principles could be most beneficially applied in pressing paper and other fabrics.

In the above press, the post D. should be 18 inches square, and 14 feet long, 9 feet above, and 5 feet below the ground, in which it should be secured by four pieces of wood, 8 feet long, and 4 inches square, fitted into notches, one on each side of the post, their ends well crossed with logs of wood, weighted with heavy stones, and covered up with earth tightly rammed. The long lever, or prize H, should be about 26 feet long, and 15 inches square; one end of it must be cut on its sides, to work freely in a mortice, made through the post D, 3 feet from its top, 20 inches deep, and 6 inches wide; the bottom of the lever will then be, when it is in a horizontal position, about 4 inches free of the hoghead; it will then rest on the blocking—forming its fulcrum at E, upon a roller or windlass, supported by a post on each side, as at F, and on the axis of the wheel, as at B. By turning the windlass, the lever H, may be drawn out of the mortice, and from above the hoghead, whenever the packer wishes to put in the tobacco, and be returned again by the same means, as soon as he is ready to press it. The end, at B, may be raised as high as the pulley A, by the rope G, which is 3 1-2 inches round, and 21 feet long, and as much blocking as possible be put

between the tobacco and the lever at E. The pressure is then applied by the movement of the wheel, the axis of which is connected with the lever at B, by a rope not seen in the plate. This rope is 1 1/2 feet long and 6 inches round; it coils about the axis as the wheel revolves, and thus depresses the lever; one end of it is hooked into a staple fixed in the axis, and the other passes through the end of the lever. When in order to repeat the pressure, you wish to put more blocks under the lever, you must before you raise it, guard against the rising of the tobacco, by a contrivance represented on the next page. It is a frame, upon the cill of which and between whose sides the hoghead stands; in the top of the frame there are two mortices, through which pieces of wood descend, as the tobacco settles, and they are prevented from rising by putting large iron bolts through them beneath the top piece, or plate, before the pressure of the lever is taken off. The wheel C, is 9 feet diameter, is made of 4 felloes 21-2 inches thick, and 8 inches wide, which are notched on the circumference, so to receive the dog or stay, as shown by I; the felloes are cased on both sides with inch plank, not shown in the plate, projecting 2 inches beyond them, and forming a groove or guide to the dogs. Holes are bored through the centre of the felloes 15 inches apart, to receive wooden pins or handles 1 1-4 inches thick, by which the wheel is worked. The felloes are bound together by two bars 14 inches wide, and 2 1-2 inches thick, which cross each other at right angles in the centre, where the axis of the wheel passes through them. The diameter of the axis is 8 inches between, and 7 inches where it goes through the posts, giving a shoulder of an inch, to prevent lateral motion. It passes through the posts a little more than 4 feet from the ground, and the wheel may be fixed on it, outside of either post. These posts are 18 1-2 feet long,

placed 32 inches apart, five and a half feet in the ground, where they are fastened, in the same way as the post D. They are five inches thick above ground, fourteen inches wide, and tapering gradually to ten inches from a foot above the axis to the top, where they are connected, by a cap of wood ten inches wide and six inches thick, in which a sheave is diagonally placed to perform the office of the pulley, erroneously represented as suspended in our diagram. The dogs are pieces of wood pointed at one end, to fit the notches of the wheel, and jointed in posts firmly fixed in the ground, as seen at I; they secure the pressure as fast as it is produced by the revolution of the wheel. The wood used for every part of this press should be well seasoned white oak.

THE COMMON PRESS.



This press is still most commonly used, but we hope that the second or small lever, by which it can be but very slowly depressed, will soon give place to the vertical wheel, which makes a better, because a more expeditious use of power. The long lever passes through the post, near the hogshead, is suspended in the mortice as shewn at section 2, by an iron ring and cross bolt, and receives in mortices near to one end, an upright post, and a smaller piece of wood called a sword, that connects it with the lower, or second lever. The boy secures whatever is gained in descent by the first lever

by putting an iron bolt I, in the hole next above it, until a new hold is taken, by raising the long end of the small lever, and pinning its fulcrum a hole higher in the sword; repeating these operations until the large lever is brought to a horizontal line, and reversing the movements, when we would raise the lever—or this may be facilitated by leaving one end unhewn, long and heavy, so as nearly to balance the other—it might, in this case, be easily raised by hand, as soon as the second lever is disengaged. The posts in this press are to be secured, as directed in the description of the other.

The powers of these two presses, may be equal, or very different—it is therefore very proper to refer to the principles which govern them. In both, the forces are simply those of one lever acting upon another; as the wheel is but a lever, the semi-diameter being its long arm, and half the diameter of the axis being its short arm. The power which the lever gives us depends upon the difference in the length of its arms. The power of the long arm is to the other inversely as their distances from the fulcrum—the shorter we can make the one, and the longer the other—the larger the wheel and the smaller its axis, the greater will be the power.

Now if we suppose the large lever of both presses to be alike, say two feet from the post to the blocks or fulcrum, and twenty-four feet thence to the other end; then as the semi-diameter of the wheel in Frazier's press is fifty-four inches, and the semi-diameter of the axis is four inches, the power of the presses will be the same, provided we carry the proportions of the wheel into the small lever of the common press as we will do by making its short arm one foot, and the long arm thirteen and a half feet. If we then apply one hundred and fifty pounds to the circumference of the wheel, or to the end of the long arm of the small lever, the power of either press, will be as the weight of 24,300 lbs.—for inasmuch as the semi-diameters of the wheel and axis, are to each other as 13½ are to 1, and likewise the arms of the small lever; we have, in either case to multiply 150 lbs. the weight attached, by 13½, to ascertain the power applied to the large lever, which we find to be 2025 lbs. and we have to multiply this by 12, as the long arm of the large lever is to the short arm, as 12 are to 1, the whole force of each press is thus shown to be 24,300 pounds. But any alteration in their proportions will vary their relative force or power. We have chosen to present them upon a scale producing equal results, to illustrate their principles; we believe however, that the proportions of the small lever of the common press are not, generally, as favourable as we have represented them. The very great superiority of the new press, must nevertheless consist in the expedition with which its power can be used. In this opinion we are confirmed by the remark of a friend, who is an experienced Planter, as well as by the certificate of several of his most respectable neighbours, who also cultivate tobacco. He says (speaking of Frazier's Press) "that its construction is so simple that it may be easily made by any rough carpenter."

"One man and a boy are quite sufficient to

attend it, but by adding two other hands, they could manage six or eight prizes to much greater advantage than they could a lesser number. Such is the astonishing expedition with which it may be worked, that two hands to the above mentioned number of prizes, will keep a packer and his attendant constantly employed.—Heretofore the prizing of our crops has been considered a most tedious and laborious part of the process of preparing them for market,—with the Labour Saving Press, the prizing is comparatively nothing—the packing is every thing—a pressure, or sett, as we Planters call it, may be had upon the first filling, in 15 minutes—indeed in may be said, that as fast as the tobacco be packed, it may be prized.—My neighbour, (Mr. B——) a planter of much merit and celebrity in this county, with four of these prizes, had twenty hogsheads of tobacco turned off, and delivered at the Inspection House in six days."

The following Certificate will show the estimation in which the Prince George's County Planters hold this prize.

CERTIFICATE

"We the undersigned Planters of Prince George's County, having recently made trial of Frazier's Newly Invented Labour Saving Tobacco Press, are of opinion that it far exceeds every other mode of Prizing Tobacco, heretofore practised in this county. It is simple in its construction—easy and expeditious in its operation, and in every respect preferable to the old mode of pressing.

ROBT. W. BOWIE,
BENJAMIN ODEN,
REVERDY GHISELIN,
S. WEST,
THOMAS EVERSFIELD.

Baltimore, March 2, 1821.

PRICES CURRENT.

FLOUR, from the wagons \$3 75—WHISKEY, 25½ cts. per gal.—HAY, per ton \$16.—STRAW, do. \$8—RED WHEAT 70 to 72 cts.—WHITE, do. 75 to 78 cts.—RYE, 40 to 42 cts. BARLEY, 40 to 45 cts. CORN, 25 to 27 cts. OATS, 20 to 25 cts.—POTATOES, 50 cts. per bu.—LIVE STOCK 6 to 6½ c.—BEEF, prime pieces, 8 to 10 cts.—CORN BEEF, 7 cts.—MUTTON, 8 to 10 cts.—HAMS, 10 to 12 cts.—MIDDLINGS, 8 to 10 cts.—BUTTER, 20 to 25 cts.—CHEESE, 8 to 10 cts. per lb.—TAR, 2 \$—SOFT TURPENTINE, \$2 to 24—PITCH, \$2½—ROSIN, common 1½—bright do. \$3 per barrel.—VARNISH, 25 cts.—SPIRITS TURPENTINE, 33 cts. per gal.—COTTON, good Upland, 15 to 16 cts. per lb.—RICE, \$3 to 3½ c.—SHIP and FLOORING PLANK, \$27 to 28, SHINGLES, best \$8—common, \$3 to 4½ p. M.—OAK wood, \$5—HICKORY, \$6 per cord—CLOVER, seed \$7—ORCHARD grass, do. \$4—COCKSFOOT, do. \$8—HERDS, do. \$3—TIMOTHY, \$5—SANFOIN, \$10—MILLET, \$5 per bushel—LUCERN, 75 cts.—SWEET CERVED VERNAL \$1 50—COW GRASS 75 cts.—TREFOIL, 50 cts. per lb.—RUTA BAGA, 75 cts.—MANGLE WURTZEL, \$1 75 cts. per lb.—CABBAGE seed, 25 to 37½ cts.—CAULIFLOWER, 75 to 100 cts. per oz.—Spring TARES, \$8 per bu.—PEAS, 25 to 75 cts. per quart—ONION seed, 20 to 75 cts.—LEEK 31 to 37 cts.—short orange CARROT, 12½ cts.—PARSNIP, 12½ cts.—LETTUCE, 25 to 75 cts.—RADDISH, 12½ to 31 cts.—BEET 12½ cts.—BROCCOLE, 31 to 100 cts.—CUCUMBER, 37 to 75 cts. per oz.—TURNIP seed, 50 to 125 cts per lb.

Virginia Tobacco, has been sold at \$7 to 7½ per cwt. and some Maryland crop do. from St. Mary's and Talbot counties, at \$6½ to 6¾ per cwt.

From the Massachusetts Agricultural Repository.

On Indian Corn and its Culture

Brighton, 29th Dec. 1819.

[To the Corresponding Secretary.]

DEAR SIR—

In an article published in the 4th number of the last volume of the Agricultural Journal, entitled "Remarks on the Agriculture of Massachusetts," the author, who very ably and satisfactorily points out the advantages of a regular rotation of crops, observes, that "no system is likely to be easily made popular in Massachusetts from which Indian corn is absolutely excluded."—May not strong reasons be offered, why any system to be generally practised, must embrace that grain as a prominent item of the course? It forms the basis of our bread-stuff, and gives deserved reputation to two life, is as sure to follow large crops of corn, as great staples, *Beef* and *Pork*; without corn effect you get none of the latter; and a farmer who has no pork in his tubs, may be considered as fairly on the road to ruin, as a bank with its vaults destitute of *specie*, for it is well known that ruta бага, potatoes or carrots alone, will not fatten such pork as our farmers or fishermen have been accustomed to, or that will be found profitable for consumption.

A *Virginian* in a *Treatise** which I have lately perused, remarks, that "even a nation which has lived with *Indian corn* and almost upon it for two hundred years, so far from correctly estimating its value, have only learned to eat it, but not to avail themselves of half its properties." And I trust it will not be deemed superfluous to portray the advantages resulting from its culture, to *New England men*; when it is considered that the *prejudice* against it, and which will exist against any crop that requires such diligence to obtain, has been fostered, and increased by the few unfavourable seasons preceding the two last—besides, some influential gentlemen, with views highly laudable, have advanced theories, founded on isolated facts, or opinions, tending to discourage the extensive cultivation of this plant.

It is admitted, that on most farms near seaports, where corn and *manure* can be purchased, the system of potato and root culture, to the exclusion of corn may be found profitable; nor would I be understood other than an advocate for such a system, in a regular rotation, upon an extensive scale; but I wish at the same time to hold up to view, the *GOLDEN FLEECE* found by our *Pilgrim Fathers* on the first landing; and which, had it not existed, or continued with their descendants nearly a century after, the *fair inheritance* we now possess, in the opinion of many sound political economists, could not have been transmitted to us.

Unfortunately we have no precise data, to test a crop of corn with other productions; and in considering its value, must have recourse to general reasonings—to the effects of its extended culture since the settlements of the country, and particularly since the introduction of

its pretended rival and valuable *auxiliary* the potato.

Let us inquire in the first place, what corn-husbandry returns from an acre of land, as usually managed. On suitable soils well tilled and manured, an average crop may be estimated at *forty bushels*, weighing 2400 lbs. of the most nutritious substance to be found in the vegetable kingdom, north of the latitude of the *sugar-cane*—and which can be preserved with ease, for a number of years.—you have the *fodder*, which if seasonably and well cured, is in the opinion of judicious farmers, equal to half a ton of good *hay*—then comes three or four tons of *pumpkins*; should the season favour, fifty or a hundred bushels of *turnips*—and, not unfrequently, a comfortable supply of *white beans*! No wonder that plenty of the necessities of life, is as sure to follow large crops of corn, as great staples, *Beef* and *Pork*; without corn effect you get none of the latter; and a farmer who

has no pork in his tubs, may be considered as fairly on the road to ruin, as a bank with its vaults destitute of *specie*, for it is well known that ruta бага, potatoes or carrots alone, will not fatten such pork as our farmers or fishermen have been accustomed to, or that will be found profitable for consumption. I am aware that it is the general opinion that corn is a very exhausting crop,—much more so than potatoes; but is it correct? has there ever been exhibited the result of a solitary experiment to confirm this opinion? no process in farming admits of greater facility to test a question of this kind—few farmers but have at times corn and potatoes under similar culture in the same field—has the wheat or barley, the clover or grasses that followed, been more productive on the part occupied by the potatoes, than that by the corn? Experience demonstrates that the *larger the crop of corn, the better the succeeding crop*; this was asserted by Dr. Eliot, the father of New England husbandry, in his *Essay on Field husbandry* published in 1747; at which period it appears, that *oats* usually succeeded corn, and possibly, in some districts, such a murderous course has continued; and it is probable that corn, after supporting its *allies*, the *pumpkins*, the *beans* and the *turnips*, from the provisions charged to its account, has to answer for the deteriorating effects of *oats*; the most inimical to grass of any plant that can be named. Moreover, it will be recollected that formerly, the rich alluvial bottoms or intervals were planted with corn, without a particle of manure, for a number of years in succession, till the product was considerably reduced;—would *potatoes* or any root crop with such management, have continued more productive? and hence, has not the reputation of corn materially suffered?

We will next inquire, what return does corn make to the soil? I cannot answer so well, as by quoting from *Arator*:—"Indian corn may be correctly called meal, meadow and manure; it produces more food for man, beast and the earth, than any other farinaceous plant. If the food it produces for the two first was wasted, and men and beasts should thence become poor and perish, ought their poverty or death to be ascribed to the plant which produced the food, or to those who wasted it? Is Indian corn justly chargeable with the impoverishment of the earth, if the food it provides for that is not applied?"

"If the theory which supposes that plants extract most or all of their matter from the atmosphere, and that the whole of this matter is manure, be true, then that plant which produ-

ces most vegetable offal must be the most improving crop, and it will hardly be denied that Indian corn is entitled to this pre-eminence."

"Let us compare it with wheat. Suppose that the same land will produce as much grain of the one as of the other, which in its use will make equal returns to the earth. Here the equality ends, if indeed it exists even in this point. The corn stalks infinitely exceed the wheat straw in bulk, weight, and a capacity for making food for the earth. If any attentive man who converts both his stalks and straw into manure, will compare their product in April, when he may distinguish one from the other, he will find in the former a vast superiority in quantity. The English Farmers consider wheat straw as their most abundant resource for manure, and corn stalks are far more abundant; corn therefore is a less impoverishing, because a more compensating crop to the earth, credited only for its stalks, than any in England. In comparing crops, to ascertain their relative product, and operation on the earth, we must contrast farinaceous crops with each other; and consider the litter or offal they produce, not as wasted, but as judiciously applied to the compensation of the land. At the threshold of the comparison corn exhibits a return from the same land of more offal or litter in its stalks alone, than wheat does altogether. But to the stalks of corn, its blades, tops, husks and cobs, remain to be added, each of which will nearly balance the litter bestowed on the land by wheat." The author concludes his encomium upon Indian corn, with observing, that "as fallow crop, it is unrivalled, if as fallow crops ought constantly to do it receives the manure."

Arthur Young who has given such an impetus to rural economy, and to root culture particularly, in Great Britain; in his travels through France in 1789, makes the following remarks respecting Indian corn. "The line of maize (corn) may be said to be the division between the good husbandry of the south and the bad husbandry of the north of the kingdom, till you meet with maize very rich soils are fallowed, but never after; perhaps it is the most important plant that can be introduced into the agriculture of any country, whose climate will suit it. The only good husbandry in the kingdom, (some small rich districts excepted) arises from the possession and management of this plant. For the inhabitants of a country to live upon that plant, which is the preparation for wheat, and at the same time keep their cattle fat upon the leaves of it, is to possess a treasure, for which they are indebted to their climate." "Planted in squares or rows so far asunder, that all imaginable tillage may be given between them; and the ground thus cleaned and prepared at the will of the farmer, is an invaluable circumstance; and finally it is succeeded by wheat. Thus a country, whose soil and climate admit the course of—1st. maize 2d. wheat, is under a cultivation that, perhaps, yields the most food for man and beast, that is possible to be drawn from the land."

This celebrated agriculturist, a few years after his return from his travels, met with a native of *Connecticut* in London, and on being informed of the face of the soil and population of

* A series of Agricultural essays entitled *Arator*, by Col. John Taylor, of Caroline County, Virginia.—Though adapted to the Agriculture of that, and the adjoining states, will be found to contain valuable practical and useful information to the New England Farmer.

that state to a square mile, observed, "they must consume all, or more than they raise!" but when told that a large surplus was exported, expressed his astonishment; and eagerly inquired "what is their principal culture?" the reply was, "Indian corn." He immediately remarks "that accounts for the wonder." The culture of corn still enters largely into the agricultural system of Connecticut,—and what is the consequence! Let one of her most revered poets answer.—

"Fell Famine sickens at the o'erflowing good
"And, hissing, flies the native land of food."—

A general failure of the crops of corn in New England, cannot be traced to more than four seasons since its first settlement, and those occasioned principally by autumnal frosts, and owing in some measure, perhaps, by an improper choice of soils. The last failure (1816) might in a great degree have been prevented, had proper attention been paid to this circumstance; and also to the selection of *early varieties for seed*, as it is a fact, that there are very productive varieties in the country, which, if planted the first of June, will be secure from frost the first of September.

The mode of culture generally in Massachusetts does not differ essentially, from that taught our ancestors by the aborigines; warm soils were chosen—an *alewife* or some other *fish*, was put into the ground with the seed, and as the Squaws had no other implement than a *clam-shell*, hills were formed with the earth that could be most easily obtained; and hills have been the order to the present time. Is it not probable that, unincumbered with stumps and rocks as a great portion of the arable lands of the state now are, and with the vast acquisition of implements, that a different process would produce much greater crops, with less labour? We have seen by publications, under the sanction of respectable societies in the western parts of the state of New York, that on *ridges* or in *rows*, more than one hundred and twenty bushels of corn have been obtained from an acre: three times the quantity we estimate as an average crop! It is true that our soils cannot boast the fertility of that new region; but it is also as true that our farmers will not yield to any for enterprise and perseverance.

The introduction of that *magic substance*, gypsum or Plaster, which exhibits such astonishing effects upon corn, and is obtained almost as cheap as sand from the sea beach, has begun to form a new era in the husbandry of the state; may we not presume, that by the aid of this substance mixed with manures in their raw state, and also applied as top dressings on the plants at every time of hoeing, till six or eight bushels are expended to an acre, instead of one or two, as is usual, that the most encouraging results may be expected? The utility of plaster, has been tested in almost every town in the state, situated 15 or 20 miles from the sea board. The invention of machines for its more easy pulverization, and so cheap, as to be within the reach of any considerable farmer is a desideratum.

The perfect culture and copious manuring demanded by corn, may be said to be the prin-

cipal objection to its more extensive cultivation; ought not this to be the very feature which should recommend it? Has not the Drill husbandry been the means of exalting BRITISH AGRICULTURE beyond that of any other country? and what is a well managed field of Indian corn, but a most complete drill system? The depth the roots will penetrate, if encouraged, and from the structure, and volume of the stalk and foliage presented to the atmosphere, it seems peculiarly adapted to resist the severe droughts of our climate?—its superiority in this respect over any other crop we cultivate, I believe will not be questioned. And, if the agriculture of New England has heretofore been entitled to any pre-eminence, compared with that of other sections of the union, the cause may be attributed partly, perhaps, to the more general use of *ox-teams*, but principally to this thorough tillage required by the soil and climate, and for which the more grateful returns are made.

On the whole, the conclusion, to my mind, is irresistible, that should Indian corn be made the basis of an extensive rotation system, with a pointed attention to the manures, which it has the capacity to increase in a compound ratio, the agriculture of our country may not only approximate to that of Great Britain, but with the energies such a system might be expected to elicit, equal it.

The eulogist of Indian corn, whose method of cultivation differs from that of his neighbours, may be expected to submit some account of it; and I felt less reluctance to the task since I find a mode very similar, and with corresponding views, has been practised and recommended by such an accomplished cultivator, and physiologist, as Colonel Taylor, the author of the treatise before referred to. It may be proper to state, that I was induced to adopt this method from the following occurrence. Having a large bed of *Beets* planted in narrow rows or drills, in the usual way, and a severe drought ensuing, the leaves were observed, in the middle of the day, to wilt and fall down, in all but the out-side rows, which remained erect and flourishing; and when the crop was taken up, were nearly double the size of those from the centre of the bed! That a greater exposure to the atmosphere, was the principal cause could not be doubted; and the idea immediately presented, that if they had been cultivated on *ridges* so far apart as to permit a plough to pass, it would in effect, be making the whole crop *outside rows*: and for upwards of fifteen years since, most of the arable crops upon my farm have been cultivated on ridges with manifest advantage,—as to product, labour, and the *unquestionable* improvement of the soil. The ridges of beets, carrots, parsnips, turnips and ruta бага, are about two feet, cabbages four, and corn and potatoes five feet and a half apart. The particular mode of cultivating carrots was communicated to the Hon. Mr. Quincy in 1811, and included in an article on the *field culture of carrots*, furnished by him and published in No. 1. of the 4th Vol. of the Massachusetts Agricultural Journal, a mode practised by that gentleman with such success, that his neighbours who have large *milk establishments*, have been induced to adopt the ex-

tensive culture of this root, so valuable for their cows, and which, some of them have informed me, they should have been deterred from attempting in the common method, from the expense and uncertainty.

But to return to the culture of corn; in describing which, that of potatoes must necessarily be embraced; as I deem it a species of *heresy* for two crops to succeed each other when it can well be avoided; nevertheless, as potatoes should be employed as the *pioneers* of a farm, and it is frequently the case that cold, moist, or rough soils, not suitable for corn, are found, sufficient to be occupied by as many potatoes as the farmer can well manage, or may want, under such circumstances, the permitting two crops of corn to follow, on *ridges*, may be justifiable.

If we begin the system with *sward land*, it is broken up in the autumn; harrowed fine in the spring, and light furrows run out five feet and a half apart:† into these furrows, potatoes are dropped from six to eight inches asunder, according to size, the carts follow and cover them with manure; a furrow is then turned from each side so as to meet over the manure, a little labour with the hoe may be required, to make all level and complete the planting; other furrows are turned up, and at the first hoeing the baulk is cleared and the ridge completed. In the subsequent culture the plough approaches only the sides, and continues deepening the furrow between them. The following spring, the ridges are reversed and placed directly over those deep furrows. The manure is turned in while the ridges are forming; or by opening a furrow on the top, to receive it, with a pair of oxen walking on each side, covered with hoes and the corn planted. If the land is in good heart, and manure abundant, the kernels may be six inches apart, or as many dropped together as to insure four stalks to remain two feet apart, in which case the manure is deposited conformably; either method will give the same number of plants to the acre; I think four stalks together afford support to each other against winds, and are not so apt to send up suckers as when single, and there may be some advantage by concentrating the manure, in forwarding the young plants during the cold seasons which we frequently have in June; still I have not had sufficient experience to determine which method is preferable; if the land is *stony*, the last will be found most convenient. As soon as the plants appear, the earth is stirred about them with the hand, and ashes at the same time strewed on, in the proportion of a handful to four plants, (my land being near the sea, plaster has no effect,) the cultivation proceeds similar to that described for the potatoes—the ploughing continues as often and as long as you please, without disturbing the roots of the corn, or breaking it down, deepening the soil and turning up the dead earth to the sides of the ridges, which checks the growth of weeds greatly; and

† If the staple of the soil is *thin*, the ridges may be six or even eight feet apart, requiring only a greater number of *gathering* furrows to form them;—and any loss of space occasioned thereby, can be made up by planting an additional row or two on the crown of the ridge, if sufficiently risen.

* The late President Dwight.

if the crop is at first thoroughly hand weeded, they will give but little trouble afterwards.

It has not been in my power to make a comparison with a crop cultivated in the common method, but I have had several *Foremen* since ridging has been practiced on the farm, who were at first prejudiced against it, but were soon convinced of its utility; and none of them have estimated the increase of product, with the same quantity of manure, at less than one fifth, and the saving of labour full as much.

It is probable that on rich soils with plenty of manure, larger crops may be obtained by making the ridges much nearer, but the labour will be more, and the advantage of uncommon deep culture, without extra expense, must be abandoned; the importance of such culture to the succeeding crops, may be illustrated by the following relation.

About fifteen months since, I was applied to, severally, by two respectable farmers, from an adjoining town, who are considered as judicious and as *thrifty*, as any in the county of Norfolk, to be informed how I had managed a piece of land, the former state of which they had well known, to make it produce such a *second* crop of clover, in such a season of drought, that theirs was *dried up*, and on land naturally moist, which they considered stronger, and had been well cultivated and highly manured? They were told in reply, that "the land was under the sixth course of a rotation.—viz. 1. potatoes, 2. corn, 3. carrots and bees, 4. corn, all on ridges, 5. spring-wheat, of which it carried thirty bushels of 59 lb. 6. clover, first crop two tons and a half, second the same season, and which had attracted their notice, about one ton to the acre." That it had from 16 to 20 lb. of clover and half a bushel of herds-grass (*Timothy*) seed to an acre; one half ploughed in with the wheat, and the remainder sown on the furrow, harrowed in and well rolled: and further, that no stock were suffered to graze upon it." It should also be stated, that a heavy crop of herds-grass was produced the last season, and that it gives promise of another;—that the soil is a deep sandy loam, known to many farmers by the name of *fox coloured earth*, and which some of them are too fearful of turning up; that when first cultivated, in the common method, which was some years previous to the present rotation, it did not show two inches of brown soil or vegetable mould, and had been considered as poor pasture. And I would observe, that had the land been longer under previous cultivation, the 3rd and 4th courses might have been omitted, and the rotation thereby shortened two years.

I will close this communication, now much longer than was intended, by mentioning that I have found the following preparation of *Seed Corn*, effectual in protecting it against squirrels, and other vermin. Take equal parts of tar and train oil, simmer them together and turn over the corn; then sift on ashes, lime, or plaster, stirring it till each kernel has taken up as much as will permit its being conveniently handled.

It is probable that *walnuts, acorns, chesnuts, &c.* thus prepared, would be protected; the destruction of which by squirrels, field mice,

&c. has very much retarded plantations of those valuable trees.

S. W. POMEROY.

JOHN LOWELL, Esq.

CHEESE MAKING.

To the Editor of the American Farmer.

SIR.

When I commenced farming, now more than 20 years since, I determined to have the cheese used on the farm, made upon it, and set about inquiring of the best dairy men and women for their process. I read all the books to be had on the subject, particularly Anderson's *Rural Economy* containing his account of Cheese making in the different counties in England, which I borrowed, as it was not then to be purchased in this country. And thus prepared, I set about the business with a dairy woman, more ignorant of the theory than myself. I had felt from my boy-hood, a great aversion to honey comb, or eylet hole cheese; and I determined not to have any with that defect, not then knowing its principal cause; the use of too much rennet, which operates like too much yeast in bread, destroying the flavour, and producing an extra fermentation. To avoid this evil I applied such power in pressing the cheese that I absolutely expressed not only the whey, but every particle that constituted richness, and spoiled the produce of the milk of six cows during the cheese making season of one year. Mr. P——, joined the rest of my friends, in laughing heartily at my blunders. It did not however discourage me, and I continued my exertions a year or two longer, when I was completely successful, and my cheese was pronounced by the best judges, equal to any in this or in any other country. Several gentlemen, all of whom had travelled, and were well acquainted with the cheese made here and in Europe, pronounced in favour of my Brighton cheese. After I had discovered the cause of my first year's mistake, and had established myself with my friends and acquaintance, I determined to ascertain the exact proportions of every ingredient, and describe the manner of performing the whole process, that my dairy women might take the management and continue to make cheese of the most approved quality. This was done in 1807, with a cheese made in the common form and in 1811, with a Pine Apple cheese; they both proved of an excellent quality, and were thought fully equal to any that had been made on the farm. Marshall states "that the pine apple cheese is pressed by its own weight;" but I could not succeed without applying a weight and using a mould, the meshes of the net were pressed into the curd when it was in the mould, and the cheese when dry, had all the appearance of the handsomest imported pine apple shaped cheese. My dairy memorandas were used on the farm of my late father, and the cheese proved excellent.

Mr. L—— has had cheese made by them of which he is not a little proud; I ate some of his cheese, and thought the best dairy woman in our country would have pronounced it of the first quality. Governor G——, from the recommendation of Mr. L. sent for a copy from my farm dairy the last season, but the result of his experiment I have not yet heard. Accompanying this, you have the extracts made by my niece, who (not a little prejudiced perhaps) says her uncle's cheese is better than any she met with, and when I expressed some doubts of my memoranda, being such as I ought to send to you, she insisted that go they must, and although not very well, she would make the extracts, and set up a claim to have her way, as she assisted when a little girl, and made the notes for my pine apple cheese. *They were made plain and minute, so as to be easily understood, and if they prove of any use, I shall be glad.*

Very respectfully, yours &c.

PINE APPLE CHEESE.

Brighton, Sept. 27th, 1811.

One quart of cream, from last night's milk, was put to twenty quarts new milk from cows this morning,

warmed in a *clean brass kettle*, to 95 degrees by Farenheit's thermometer,* then strained into a cheese tub. One table spoonful of strong rennet, and a piece of Spanish annetto, the size of a large pea, were then put into the tub. After it had stood half an hour, the curd was well formed; it was then crossed with a wooden knife. Half an hour after, the curd was broken gently by the hand, and in half an hour more, was *wheyed off*, as it is termed: The curd appeared well, the whey thin and of a greenish colour, which is always desirable. The curd was then scalded in whey. Two hours after, we put into the curd, three table spoonfulls of fine salt, and one tea spoonful of salt petre. The curd was next put into a bag with the net out side, and then placed in the mould, the form of which is nearly that of an inverted cone. The screw press was now applied, gently at first, and increased through the day. At 8 o'clock in the evening, the cheese was taken out of the mould, the net and bag taken off, the net then put next to the cheese, and the bag outside; the cheese thus covered was put into the mould again, and pressed with increased force until next day at 12 o'clock; it was then taken out, and was found to have been well pressed; the meshes of the net had made a deep and handsome impression. The cheese was then hung up in the cheese room, in the net, but without the bag. Ten days afterwards the net was taken off, the cheese wiped every day, for six weeks, and rubbed with the following preparation:

Salt pork, tried out, and melted butter of equal parts. A common saucer full when melted, to be browned a little over the fire, then strained perfectly clear, and a piece of Spanish annetto added, the size of a large pea or common bean, which must be dissolved and properly stirred in the fat, and when cool it will be fit for use.

The above-mentioned pine apple cheese was cut December 22d, 1813; it weighed six pounds and one quarter, and connoisseurs pronounced it to be of the first quality. Frequently and usually it passed for an English cheese, and was highly commended as such.

This cheese is also called "Cream Cheese," and it is difficult to make one more rich.

TWO MEAL CHEESE—Dairy Memoranda.

Brighton, Sept. 27th, 1807.

The cream was taken this morning from the milk of last night, and this morning's milk added to the milk just skimmed, making together five and one half gallons, which was then strained into a clean brass kettle, and warmed to 95 degrees by Farenheit's thermometer, it was then put into the cheese tub, a piece of rennet of the usual thickness, one inch and one quarter square, one penny weight fourteen grains of salt petre, (which when fine, filled the bowl of a common tea spoon level with the top) and one grain and a half of Spanish annetto, (a piece the size of a common pea,) were put into the milk—which stood a half hour, till the curd rose and was fit for crossing, when it was crossed with a wooden knife, used for that purpose. It was then left twenty-five minutes longer, when the whey was separated from the curd, and it was broken up by hand. After it had settled, the whey was taken off gradually, the curd was then scalded in whey, after which it was chopped quite fine, and two table spoonfuls of fine salt sprinkled over it. And it was then put into the cheese hoop, and pressed very gradually at first, but as soon as the rind had formed, the power of the press was increased, by applying heavier weights to the lever. This cheese, when taken from the press, was put in the cheese room, turned every day, wiped clean, and once every week, for six weeks, rubbed with fresh butter.

It was cut in the month of January, 1808, and proved very good.

* The warmth of milk directly from the cow.